

Appl. No. 10/714,207
Reply to Office Action of January 10, 2006

Attorney Docket No. 2003-0442 / 24061.519
Customer No. 42717

Amendments To The Claims

Please cancel Claims 3-4, 11, 13-19, 21-29 and 31-39 without prejudice. The following list of the claims replaces all prior versions and lists of the claims in this application.

1. (Currently amended) An integrated process flow involving a patterned photoresist layer on a substrate in an etching tool that has one or more process chambers, said patterned photoresist layer having an opening with a top and bottom that extends through at least one underlying layer in said substrate, comprising:

- (a) performing an oxygen ashing step to remove said patterned photoresist layer;
- (b) cleaning a residue from said opening by performing a halogen containing plasma step; and
- (c) etching said cleaned opening in said substrate;

wherein steps (a), (b), and (c) are performed in the same process chamber of said etching tool.

2. (Original) The method of claim 1 wherein said etching tool is a split power etcher, a dual power etcher, a single power etch tool, a reactive ion etcher, or a conventional barrel, direct, or downstream type of ashing tool.

Claims 3-4 (Canceled).

5. (Original) The method of claim 1 wherein said halogen containing plasma step involves a plasma that is formed from one or more of CF_4 , CH_2F_2 , SF_6 , NF_3 , Cl_2 , and $\text{C}_x\text{F}_y\text{H}_z$ where x and y are integers and z is an integer or is 0.

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6. (Original) The method of claim 5 wherein the halogen containing plasma step includes HBr in combination with one or more of CF₄, CH₂F₂, SF₆, NF₃, Cl₂, and C_xF_yH_z where x and y are integers and z is an integer or is 0.

7. (Original) The method of claim 1 wherein the halogen containing plasma step is comprised of a halogen containing gas flow rate of about 3 to 500 standard cubic centimeters per minute (sccm), a chamber pressure between about 1 mTorr and 3 Torr, a chamber temperature of about -15°C to 150°C, a HFRF power or top RF power from about 100 to 3000 Watts, and a LFRF power or bias power of about 10 to 1000 Watts for a period of less than about 60 seconds.

8. (Original) The method of claim 1 wherein the etching tool is a single power tool and the halogen containing plasma step is comprised of a halogen containing gas flow rate of about 3 to 5000 sccm, a chamber pressure between about 1 mTorr and 3 Torr, a chamber temperature of about -15°C to 150°C, and a RF power from about 50 to 1000 Watts for a period of less than about 60 seconds.

9. (Original) The method of claim 1 wherein said opening exposes an underlying silicon layer and step (c) forms a shallow trench in said substrate.

10. (Original) The method of claim 1 wherein said opening exposes an underlying gate layer and step (c) forms a gate electrode.

Claims 11-39 (Canceled).